

## Quantity that 100 cubic inches of air will take up.

Temp.	Cubic inches.	Temp.	Cubic inches.
50° . . .	9	75° . . .	29
55 . . .	11	80 . . .	36
60 . . .	14	85 . . .	44
65 . . .	19	90 . . .	55
70 . . .	24		

The quantity of this vapour in the air the patient inhaled at ordinary temperatures was only about a quarter as much by measure as there would be of ether,—being, however, nearly twice as heavy; there was nearly half as much by weight. Now, on account of the small space it occupied, it only excluded the air to a quarter the amount that ether-vapour did, and therefore interfered but little with the natural process of respiration; the patient, indeed, could take in nearly the usual amount of oxygen without quickening or enlarging the respiratory movements. It was to be observed that temperature exerted a great influence over the quantity of this vapour that air would take up, and thus an elevation of little more than fifteen degrees in the warmth of the apartment would double the amount of it which the patient would inhale in a given time, if no means were taken to regulate the evaporation. Dr. Simpson recommended the chloroform to be inhaled from a sponge or handkerchief, and this simple means was efficient; but he (Dr. Snow) preferred to use an apparatus, as, without it, more of the vapour was blown away by the warm breath of the patient than was inhaled. The strength of the vapour could not be regulated; it could not even be known when it was all expended, and no exact observations could be collected. The chloroform was of easier application than ether, on account of its quicker action; but for the same reason, greater care was required in its use to avoid accident.

Dr. F. Bird said that he had seen the chloroform administered that day in two operations, by Mr. Philips, at the Westminster Hospital; it was perfectly successful, and the patients recovered their consciousness very quickly.—*Lancet*, Nov. 27, 1847.

68. *Operations performed at St. Bartholomew's Hospital, upon Patients rendered insensible to Pain, by the Inhalation of Chloroform.*—HOLMES CROOTE, Esq., reports (*Lancet*, Nov. 27, 1847) three operations performed by Mr. Lawrence, on patients under the influence of chloroform,—two, lithotomy by the lateral operation, and the third, extirpation of a tumour from the breast. These cases, Mr. Croote says, confirm the favourable report given by Prof. Simpson, of the effects of this agent.

"These three patients," Mr. Croote states, "did not experience the smallest inconvenience from the inhalation into the lungs: the condition into which they were thrown—differing from the state of stupor, which commonly ensues after the inhalation of ether—bore the closest resemblance to profound sleep; they recovered quickly, the smell was speedily gone, and the cases are now going on most favourably.

"Without wishing in any way to detract from the very great merit of Professor Simpson, in introducing this valuable agent, I may observe that for some considerable time Mr. Lawrence has used, in private practice, the chloric ether, which is chloroform in spirit and water. *Patients with irritable lungs, who could not tolerate the violent paroxysms of coughing induced by the sulphuric ether*, readily inhaled the chloric ether, the taste and smell of which are similar to those of chloroform; the anæsthetic effect was more gently induced, and there were fewer complaints, on recovery, of soreness of the chest, headache, &c. The less irritating effect of the chloric ether was noticed by Mr. Taylor, and by myself, in some experiments (reported in this journal) performed upon animals; their efforts to escape were most violent, when immersed in the vapour of sulphuric ether.

"One of the students of the hospital, who in the early part of the year was anxious to have some painful stumps of teeth removed from the jaw, kindly consented to take the ethers upon two different occasions, and to report the result. He described the taste of the chloric ether as much more agreeable than that of the sulphuric; the effect upon the lungs as less irritating and oppressive; but he thought that the state of unconsciousness was not equally complete. Mr. Lawrence

has, however, performed many most severe operations upon patients rendered perfectly insensible to pain by the inhalation of the chloric ether, and he is now in the habit of directing its administration.

"The advantages which the chloroform appears to possess are so numerous and important, that if the results of subsequent trials are equally successful with those here recorded, there is little doubt of its superseding all other known anæsthetic agents. Some modification in the mode of its administration may be requisite, since, as I am informed by Mr. Mitchell Henry, one of the house-surgeons, the lips of two of the patients have been vesicated by the application of the sponge.

[Operations have also been performed, upon patients under the influence of chloroform, by Messrs. Liston, Fergusson, Aston Key, Hancock, Walton and other surgeons in London, and in Paris, by MM. Blandin, Roux, Vidal, and Amussat. The results obtained, are said to be confirmatory of the statements made by Prof. Simpson.]

69. *Chloroform in Midwifery Practice.*—Dr. PROTHEROE SMITH, in a paper in the *Lancet*, (Nov. 27, 1847,) related the following case of labour in which he employed it.

"A lady, aged thirty-seven, of a highly nervous temperament; has been married fourteen years; had, in the first ten years after her marriage, four male and three female children, besides a miscarriage. During the last six years she has occasionally suffered from bearing-down and other symptoms of uterine distress, which were always aggravated by walking, especially so during pregnancy. Menstruation has been somewhat irregular and often scanty. She continued in good health till the evening of the 17th, when she had a sudden and severe pain in the left hypogastrium: she described the sensation as giving her the idea of something being torn from the womb.

"At twenty minutes past three o'clock A. M., on the 18th, a sudden gush of blood and some water occurred, and was followed by slight pains; at eight o'clock these recurred more or less severely about every quarter of an hour or twenty minutes, but remitted towards night. Examination per vaginam at this time discovered the os uteri high up and dilated to about the size of a sixpence; the head presented in the first position; the margin of the os uteri was very uneven and irregularly hard, feeling as though some beads were imbedded in its tissue. The pains became more regular in the evening of the 18th, recurring about every quarter of an hour, but again diminishing in both strength and frequency as night advanced. Towards the morning of the 19th, they became more persistent and came on every quarter of an hour till the evening, when the patient appeared rather exhausted. At this time the head was still above the brim of the pelvis; the os about the size of a shilling, and its edges presenting the peculiarity before mentioned. There had been occasional discharges of blood and liquor amnii. I could not detect any presentation of the placenta. The patient was ordered twenty-five minims of the sedative liquor of opium, which procured her a good night's rest.

"The pains came on again at seven A. M. of the 20th, and continued without interruption about every seven minutes. The os dilated very slowly, leaving the bead-like structure more distinct from the recession of the intermediate tissue. About four P. M., notwithstanding the pains were powerful, the os, which was dilated nearly to the size of an orange, yielded but slowly. I ordered a plentiful injection of hot water per vaginam, soon after which the os dilated more readily, though the anterior lip became œdematous, and was pressed between the head and os pubis.

"At this period of the case, the patient became very urgent for relief, and, with the consent of herself and friends, I began to administer the chloroform, during the terror of a severe pain. The countenance, which before had expressed severe suffering and intense anxiety, immediately relaxed into a placid smile, and in a few inspirations, the patient appeared in a profound sleep, when the inhalation was suspended, but renewed on the recurrence of each uterine effort. The contractions came on at the same intervals as before the inhalation. The os now yielded rapidly, and the membranes which protruded at the os externum